

REMARKS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments, and the following remarks.

The Applicants comment upon the prior art rejections of the claims as follows.

The present invention is based on the general ideal of imparting a shape to the rotor, especially in the connecting claw section, that allows manufacture of the rotor using a compression mold with a number of mold rams that can be acted upon individually with a sintering pressure sufficient for all the function areas. Due to the division of the connecting claw section into two separate, diametrically opposed individual webs, it is possible to adequately compress these individual webs due to this sintered compression mold ram that can be acted upon separately to an adequate extent for the material stability required in this area. This is possible because the compression pressure is to be applied only to a small cross-sectional area in each case, so that an extremely high specific pressure can be achieved in these cross-sectional areas.

Thus, a one-piece sintered rotor of a single unitary

construction is created.

In order to distinguish over the state of the prior art according to *DE 402 00 82 A1 (Hertell)*, amended claim 1 is hereby presented. In this amended claim 1, the connecting claw section (2) and the individual webs (3) are again recited. The originally presented press-sintered structure was made more precise as a one-piece structure, to distinguish it from *Hertell*. The disclosure of the more precise formulation was derived from the German text of the WO publication, on page 2, last paragraph, which goes over to page 3, and page 5, last paragraph.

Because of this recitation of a one-piece press-sintered structure in amended claim 1, the invention recited by the amended claim is clearly novel and nonobvious over *Hertell*. This is because in *Hertell* there is no one-piece press-sintered rotor of a single unitary construction. Instead, three separately produced components are subsequently joined together to form a rotor in this prior art reference. This prior art method of construction is clearly described in *Hertell*, in the description relating to Fig. 4 and 5 (column 2, line 49, to column 3) completely.

The present invention proceeds from such a state of the prior art and relates to simplifying the produceability to produce a very different structure of the invention of a rotor having a one-piece sintered structure, formed in a single unitary construction.

This prior art problem is solved by means of a rotor having the claimed structural features of amended claim 1, and being a one-piece sintered structure of a single unitary construction.

In this connection, the required material strength of the crosspieces is achieved, according to the claimed invention, by means of a greater compression as compared with the adjacent material. A prerequisite for such great compression is separate sinter punches, restricted to the region of the crosspieces, of a tool consisting of several sinter punches. This is in order to be able to achieve sufficiently great sintering pressure on the crosspieces in this manner. In the case of a one-part sinter tool, it would not be possible to achieve sufficiently great pressing pressure with reference to the crosspiece regions, by way of the tool. This is because of the pressure surface that results from this with reference to the sinter surface.

Because of the patentability of claim 1 as compared with *Hertell*, the patentability of the dependent claims, all of which are dependent from claim 1, also follows, since they merely represent practical embodiments of the invention according to claim 1.

Claim 12 was amended to recite a "rotor according to claim 1, having a sintered coupling element."

The deficiencies in the teachings of the primary reference to *Hertell* are not overcome by the disclosure of the secondary references to *Straus* or to *Yoshida*.

On page 1 of the present Specification is a discussion of the *Straus* prior art reference.

A prior art rotor is known from *Straus (DE 197 03 499 A1)*, for example. The rotor there is manufactured in three parts, namely a sintered pot part, a rotary steel part and a copper ring, in a very time-consuming and cost-intensive process. The rotary part is soldered to the sintered pot part over the copper ring after prior carburization. During the heat treatment which is necessary for soldering, the copper of the copper ring

diffuses into pore zones of the sintered component that are at risk of fracture and thereby ensures that the rotor will have adequate fracture stability in the area of the rotary part. The steel rotary part forms the connecting claw section of the rotor. The claw in this area, to which a coupling is attached, is designed to run over the entire diameter of the soldered steel rotary part. For example, the known rotor could be manufactured by a sintering process known from *EP 0 822 876 B1*. The reason for the joining of multiple parts, i.e., at least two prefabricated starting parts, as described above, is that the coupling area in the case of a one-piece sintered rotor (of the present invention) could not previously be produced with adequate strength for continuous operation of the rotor.

The claimed invention is concerned on the whole with solving the problem of especially economical and inexpensive manufacturing of a one-piece sintered metal rotor having adequate long-term strength in its coupling area in particular. This is because the claimed rotor is of a single unitary construction and is a one-piece sintered metal structure.

No prior art reference to *Hertell*, *Straus* or *Yoshida* teaches how to produce the claimed one-piece sintered metal rotor, since


each reference teaches producing several components which must later be joined together to form a rotor.

For all the reasons set forth above, the present invention and all the claims are firmly believed to be patentable under 35 U.S.C. 103 over all the prior art applied by the Patent Examiner. Withdrawal of this ground of rejection is respectfully requested.

A prompt notification of allowability is respectfully requested.

Respectfully submitted,
Peter GRAHLE ET AL.

COLLARD & ROE, P.C.
1077 Northern Boulevard
Roslyn, New York 11576
(516) 365-9802
ERF:lgh


Allison C. Collard, Reg.No. 22,532
Edward R. Freedman, Reg.No. 26,048
Attorneys for Applicants

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 26, 2007.


Amy Klein